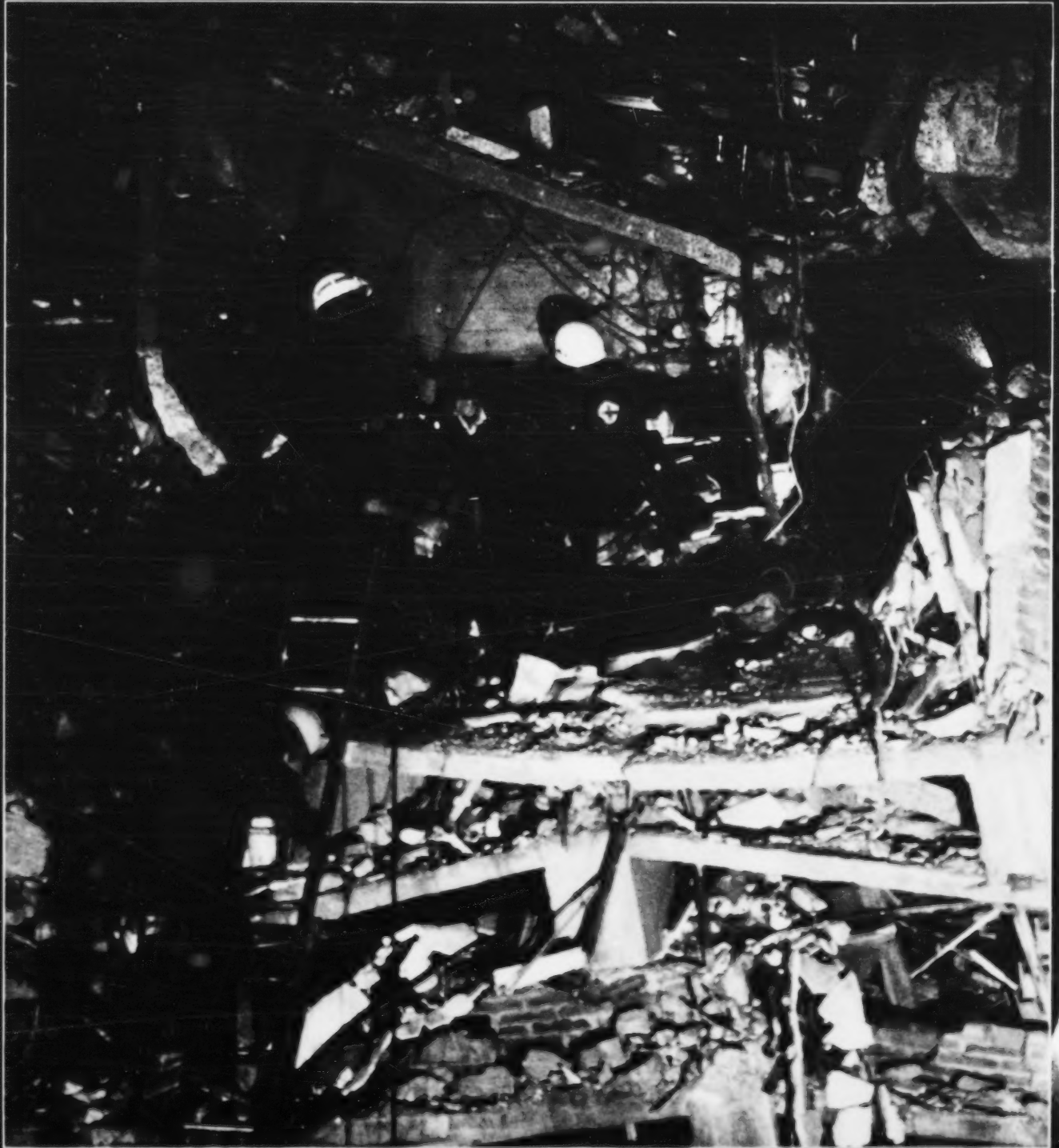


WORLD HEALTH

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be prepared!

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WORLD HEALTH DAY 1991

Should disaster strike - be prepared!

by Dr Hiroshi Nakajima

Director-General of the World Health Organization

Today we celebrate the forty-third anniversary of the World Health Organization. During recent decades, we have seen significant advances in health, social and economic development. And yet this progress has been repeatedly interrupted and set back by man-made and natural disasters. We cannot pursue our long-term strategies for Health for all without paying attention to this global problem.

WHO's definition of a disaster is: "Any occurrence that causes damage, economic disruption, loss of human life and deterioration in health and the health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area." Under this definition, a disaster occurs, somewhere in the world, almost every day. By its very definition, it is clear that response to a disaster must involve all sectors of government and the whole community.

Unfortunately, it is virtually impossible to prevent most disasters. Nevertheless, we can forestall or alleviate many of their worst effects by anticipating them and by being prepared. WHO's concern is with reducing the adverse impact of disasters on human health, through preparedness and by bringing the right technology to bear in a timely, coordinated and effective manner, for each phase of operation,

namely, relief, rehabilitation and reconstruction.

Part of preparedness for disasters, as for any other condition of ill-health, is to have a sound understanding of the epidemiological situation and the ability to anticipate disaster events. WHO, in cooperation with governmental and non-governmental organizations, and with other organizations and bodies of the United Nations system, is engaged in tracking the history of major disasters, in time and place and in magnitude of effects.

These data show, for example, that in 1988 alone there were 74 major floods, five cyclones, 11 hurricanes, 34 giant storms, 17 landslides, 17 earthquakes, 18 droughts and 162 major accidents, of a magnitude exceeding

A Turkish boy sits amid earthquake rubble; a family lie poisoned by volcanic gases in Cameroon; a hurricane pounds the Florida coast. WHO is helping countries to anticipate disaster events.

READEX
FIGURE



local and national capacities to cope. By way of recent examples: the earthquake in the Islamic Republic of Iran in June 1990 took an estimated 40,000 lives and left half a million homeless. In the Chinese province of Hunan, floods caused by torrential rains followed by violent storms affected some 20 million people, with direct economic loss in the order of US\$ 435 million.

The greatest number of disasters occur in those countries that are already most adversely affected by ill-health and poor economic conditions. Most types of natural disasters are apt to recur in the same countries or areas. Furthermore, with the continuing deterioration of the environment, including deforestation and misuse of land, we have every reason to believe that the frequency of disasters, such as flood and drought, will increase in the coming decade.

By better monitoring the weather and climatic patterns over time, we can anticipate some types of disaster. We can reduce the impact of such events when they occur, for example, by planning and designing buildings correctly, starting with the health facilities, which could also serve as models of construction. We also know that certain sequelae of specific types of disaster occur repeatedly, including epidemics of diarrhoeal diseases with floods, malnutrition – if not downright famine – with prolonged drought, and burns from volcanic eruptions or forest

fires. This has allowed us in the most efficacious way to prepare for and respond to a specific type of disaster.

Unless response is properly coordinated, the well-intentioned donor community may end up by providing excessive amounts of some types of supplies, while ignoring others that may be more urgently needed. Standard lists of supplies can be useful in responding to defined emergency situations. As important as the immediate response to the emergency is the long-term rehabilitation and reconstruction of the affected area. And these should be considered as part of emergency preparedness.

International solidarity and cooperation are essential to reducing the adverse effects of disasters. For this reason, the United Nations has declared the 1990s to be the International Decade for Natural Disaster Reduction. It is particularly appropriate that World Health Day this year should draw attention to how we can reduce the impact of disasters. Our slogan is: Should disaster strike – be prepared!

Hiroshi Nakajima, M.D., Ph.D.

Cover: Frantic search for survivors after an earthquake; being prepared for disasters saves lives!

Photo WHO/PAHO



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Contents

WORLD HEALTH DAY 1991

Should disaster strike – be prepared!

by Hiroshi Nakajima 2

Challenges for the 1990s

by Hamad A. Hamad-Elneil 4

Silent disasters of Africa

by Maniza S. Zaman 7

Should disaster relief strike – be prepared!

by Claude de Ville de Goyet and Patricia Bittner 10

Under the volcanoes

by John S. Mills 13

Should disaster strike – be prepared!

..... 16-17

NGOs have proved their worth

by Bruce Dick 18

Superfluous to requirement!

by John Bland 20

Health services are casualties too

by John Ash and Mike Gomez 22

Myths and lessons

by Andrei K. Kisselev 24

Bangladesh bears the brunt

by Ahmed Fazl 26

Working with UNDRD

by M'Hamad Essaafi 28

News Page 30-31

Challenges for the 1990s

by Hamad A. Hamad-Elneil

We live in a world where television, radio and our daily newspapers constantly remind us that disaster can strike at any time – in any place. It might be a flood in Tanzania or an earthquake in the Philippines. It could be a meningitis epidemic in Ethiopia or a chemical explosion in Australia. It could be a hurricane in the Caribbean or a nuclear accident somewhere in Europe. What is clear is that a major task for the 1990s will be to find ways to prevent and better manage these and other disasters.

The Challenge

Examples of natural disasters and their devastating effects can be traced throughout history. However, as the 21st century approaches, we face a changing mix of demographic, ecological and technological conditions which make many populations more vulnerable to the impact of both natural and man-made catastrophes.

By 2000, nearly half the world's population will live in urban areas. In developing countries, this pattern of unchecked urbanisation is already reflected in sprawling and high-risk shanty-towns. Increasingly, we are witness to massive population displacement both within countries and across national borders. By 2015, it is predicted that more than eight billion people will live on our small planet.

As this growing population places its demands on our natural resources, we have become more aware of our environmental vulnerability. Today we have every reason to be concerned about the long term effects of deforestation and poor management of our water resources. Similarly, we should realise that erosion and overdevelopment have already increased the disaster risk of many communities.

Moreover, the technological "progress" of the past century has not been without its costs – and risks. Rapid industrial development, especially in crowded cities, has created a host of hazards previously unknown in our places of work – or in our neighbourhoods.

This combination of rapid population growth, uncontained urbanisation, shrinking natural resources and newly emerging technological dangers now confronts us with a mix of conditions which amplifies the potential impact of both natural and other catastrophes – and their unforgivable human costs. It highlights the urgency for improved disaster prevention and preparedness in all sectors.

The Opportunity

Today, an awareness of our environmental fragility has stimulated a sense of global responsibility to protect our natural resources. In much the same way, our shared vulnerability to the effects of disasters provides opportunities for solidarity which cross national

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boundaries and touch on a range of different disciplines. This need for concerted international action is reflected in the declaration of the 1990s as the **International Decade**

for Natural Disaster Reduction. It is a call to all governments and the international community to work together to reduce the effects of disasters, with a focus on developing countries where the risk and the impact of natural disasters are greatest.

In this context, I should clarify the term "*disaster reduction*." It refers to the combined efforts, measures and policies that are undertaken in disaster preparedness, prevention and mitigation which ultimately reduce the impact of natural and man-made catastrophes.

In this challenge for the 1990s, I would like to outline some of the organizational and technical opportunities available to the health sector.

Organizationally, health personnel have a real chance to work alongside hydrologists, meteorologists, urban planners, engineers and other professionals at all stages of the disaster prevention-rehabilitation continuum. Health workers have a lead role to play, in pointing out epidemiological risk factors associated with certain building methods, for instance, as advocates for populations who are particularly vulnerable – such as

What is World Health Day?

The seventh of April each year is celebrated as World Health Day because it marks the date in 1948 when sufficient countries had ratified their signatures to bring the Constitution of the World Health Organization into force.

Ever since 1950, a theme related to international public health has been selected for each World Health Day, with an appropriate slogan. The member countries then devise their own ways of bringing this theme to public attention on 7 April, and of keeping it in the public eye throughout the whole of the year.

The theme for 1991 is emergency preparedness – a particularly fitting theme since the United Nations has proclaimed the 1990s as the International Decade for Natural Disaster Reduction.

Disasters of all kinds – whether natural or man-made – strike at the well-being of people all over the world. And unfortunately the countries where they are most prevalent are often those which have the least resources to deal with their social and health consequences. But WHO believes something *can* be done to mitigate those consequences, provided the right steps are taken before disasters occur, in their immediate aftermath, and during the slow reconstruction and rehabilitation process.

This is why the chosen slogan for World Health Day 1991 is:

**SHOULD DISASTER STRIKE –
BE PREPARED!**

Famine disasters are slow and insidious.

Iceland's Helgafell volcano sends molten rocks tumbling towards nearby homes. Facing page: No less graphic – the violence of earthquake damage in Salonika, Greece.

women and children – in times of drought, and as frontline responders should disaster strike.

Disaster reduction is a multi-sectoral and multi-agency responsibility. No single organization or discipline can do it alone. For example, preparedness planning presents rich possibilities for health workers, civil defence officers and representatives of local and non-governmental organizations to minimise the impact of likely catastrophes by pooling their collective expertise even before a disaster occurs.

Similarly, disaster response provides new opportunities for cooperation across disciplines and organizations, as people work together to reduce the human impact of a catastrophe.

The rehabilitation phase which follows a natural or man-made disaster provides a host of opportunities to improve existing health services. It is a chance not only to rebuild damaged facilities but, more importantly, to strengthen key health programmes so that they can deliver a better routine service, and are less vulnerable to disasters in the future.

Technically, disaster reduction provides the health sector with a number of important opportunities during the 1990s. Progress in satellite imaging now alerts us to approaching cyclones





WHO/PAHO

Training practice in handling emergencies in Peru.

and droughts before their effects are felt. Rapid developments in global communication and computer technologies enable us to transmit assessment findings from disaster-affected areas within hours of impact.

What we should not forget, however, is that there are many parallels between the forecasting strategies used in the meteorological sciences and the epidemiological surveillance/early warning techniques applied to the detection of epidemics. Our challenge is to explore ways in which emergency preparedness strategies can be more effectively integrated into these and other continuing health activities at national, provincial and community levels.

Practical research questions remain to be answered. They are far-reaching,

such as determining affordable mitigation measures for hospitals in areas prone to earthquakes and cyclones, or finding more effective early warning methods for the rapid detection of epidemics, which in many countries still account for thousands of unnecessary deaths and hospital admissions each year.

A technical priority at all levels is training. Better disaster preparedness in the health sector clearly requires the training of health workers at all levels, and the integration of key preparedness principles into the curricula of training institutions. At a global level, WHO has long supported disaster training activities on a wide range of technical subjects, in partnership with regional offices and collaborating centres. Moreover, in the Americas and the Caribbean, WHO's Regional Office for the Americas (AMRO) in Washington has played an active role in stimulating disaster preparedness

training at country level. The Pan African Centre for Emergency Preparedness and Response in Addis Ababa, Ethiopia, increasingly supports the special disaster reduction training needs for Africa. These efforts which address priorities in regional disaster preparedness provide invaluable opportunities for sharing the "lessons learned" among countries facing similar disaster risks.

We live in an era of contradictions. On one hand, an earthquake can result in 25,000 deaths because of outdated and unsafe construction techniques. On the other, technology exists today which can help to mitigate the effects of disasters, even when they occur in remote areas. Despite the extraordinary challenges we face in better preventing and mitigating the effects of natural and man-made catastrophes, we as health workers have a clear obligation – should disaster strike – to be prepared. ■

A Decade for Disaster Reduction

A United Nations General Assembly resolution in December 1989 proclaimed 1990 to 1999 as the International Decade for Natural Disaster Reduction (IDNDR). This decision reflected the pressing need for improved global disaster prevention and preparedness.

Since disaster reduction efforts are most effective at the local level, governments are being urged to establish national IDNDR committees. These provide important opportunities for multi-sectoral and multi-agency cooperation, and can help to focus national interest on the need for disaster preparedness and prevention. In this context, it is clear that the health sector must play a critical role, so the IDNDR provides health workers worldwide with an important platform from which to articulate their disaster preparedness and response priorities.

At the global level, four bodies have been created to facilitate, guide and monitor the IDNDR: a special high level council, a scientific and technical committee of 20-25 experts, a secretariat to coordinate Decade activities, and a trust fund to support IDNDR projects.

Details about global IDNDR activities and information on national Decade focal points and committees can be obtained from: IDNDR Secretariat, Palais des Nations, 1211 Geneva 10, Switzerland. Tel: (022) 798 58 50/798 84 00; fax: (022) 733 86 95.

Silent disasters of Africa

by Maniza S. Zaman



A whole spectrum of disasters regularly afflict the African continent. In terms of the harm they do to communities, they can be roughly ranked in this order: famine, war and civil strife, displaced populations, floods, cyclones, earthquakes and, lastly, epidemics. Always lurking behind these newsworthy events, and in part a consequence of them, are the "silent disasters" of Africa: chronic conditions of malnutrition, high death rates among children aged under five, a lack of health services and gross social inequality.

When disasters strike, people die or are injured, they lose their possessions and their homes; basic services may be interrupted, and recovery from such events call urgently for often scarce resources and time. And alongside the health, economic and social consequences come the short-term and long-term effects on the food situation. Thousands of families may face hunger because floods have washed away all food stocks, while their land has been devastated, and there are no savings or income to buy such food as is available.

It was with a view to counteracting some of these harmful effects that WHO's African Regional Office set up its Emergency Preparedness and Response Unit in 1987. The following year the Panafrikan Centre for Emergency Preparedness and Response was created in Addis Ababa. The Centre offers training courses and also conducts operational research and policy analysis related to disasters and the chronic food crisis, as well as to the management of the health situation in times of disaster.

Most of the disasters that afflict Africa call for large-scale food relief programmes. Such nutritional emergencies are epitomised by the unforgettable images of famine victims who congregated at relief camps in Ethiopia and Sudan during the mid-1980s. Famine is a slowly developing phe-

nomenon which may be triggered by drought, uncontrolled pest infestation or the threat of warfare.

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Even though there may be various early warning indicators – such as low rainfall, dwindling food reserves, toppling market prices – it is only when local coping mechanisms and external aid have both failed that people start to die from malnutrition and starvation. During the last decade, such countries as Kenya, Botswana and

Tanzania have responded promptly to indicators of emerging food crises, and by mobilising internal resources have succeeded in averting famine situations.

African countries are host to more than 4,500,000 refugees, most of whom are fleeing from war situations or repressive regimes. The majority of them carry only the minimum of food needed for survival before reaching the host camp, and are thus totally dependent on external aid for survival. Feeding them remains one of the biggest challenges in the care and management of refugees.

Wars and civil strife often lead more directly to food crises. Financial, material and human resources are diverted from agriculture to fuel the war, local

Drought and desertification: slow disasters that affect many African countries.

markets are disrupted, people migrate within the country or become refugees, and relief efforts may be deliberately blocked.

The timing of a sudden disaster will have a critical bearing on the consequences. If it strikes during the lean pre-harvest period, communities will be more vulnerable than ever, since food stocks will be low and people's nutritional status relatively poor.

Direct assistance in the form of food relief involves feeding or distribution of dry food rations. Sometimes only a short-term food distribution for not more than a few weeks may be called for in the wake of a disaster. Other situations require long-term food relief over months if not years (e.g. protracted emergency situations).

Even when food is physically available, famine conditions may arise simply because poor people do not have access to the supply. At-risk groups in such circumstances have to be helped, either through food-for-work schemes or by providing employment opportunities, for instance, on public works projects.

Deficiency diseases

The most common problem to be faced is protein-energy malnutrition. Added to that may be specific vitamin and mineral deficiency diseases – for instance, scurvy due to lack of vitamin C, anaemia through lack of iron or folic acid, or blindness and illness caused by vitamin A deficiency.

Severe malnutrition rarely occurs in the immediate aftermath of disaster, but may develop slowly if preventive action is not taken. It usually arises among people subjected to long-term stress – where drought conditions lead to famine, or where refugees already facing chronic food shortages have to embark on long journeys.

Ideally it is best to avoid the formation of settlement camps in case they become permanent. But more often than not such camps develop spontaneously, and the responsibility for running them falls on the relief workers. WHO has recently developed rapid assessment protocols for use in different types of emergencies, so as to determine the severity of the problem, the adequacy of food access and the local response capability.

In the WHO publication *The Man-*

When local resources and external aid fail, people start to die from malnutrition and starvation.





WHO/CRED/J.P. Revel

Training course in the computer laboratory at CRED, in Belgium.

agement of Nutritional Emergencies in large populations, four ways of food relief are recognised. General food distribution includes delivery of dry food to people (usually families) at regular intervals. Mass feeding means that prepared (cooked) food is served to everyone, usually in a camp setting. Supplementary feeding will ensure that extra rations reach groups more vulnerable to malnutrition, such as children under the age of five years, pregnant or lactating women, or old people, in addition to the general rations or meals so that their particular needs are met. Therapeutic feeding will provide high-energy, high-protein foods for people – in particular infants and young children – suffering from severe protein-energy malnutrition.

One rule-of-thumb target is to provide an absolute minimum of 1,900 kilocalories per person per day, regardless of age. Of course, this figure needs to be augmented for people with infectious diseases (who need more calories), or if clothing and shelter are inadequate to keep people warm.

The Office of the UN High Commissioner for Refugees (UNHCR) recently issued strict policy guidelines about the

acceptance, distribution and use of milk products in refugee settings. All too often, the composition of food aid is more a reflection of the surpluses available in the industrialised world than of the needs of the target population. The nutritional composition of the aid then falls short of meeting specific vitamin and mineral requirements and may even create new hazards of deficiency diseases. There remains an urgent need to resolve the problem of providing nutritionally balanced and culturally acceptable rations to the beneficiaries of feeding programmes.

An important component of any relief operation is a system of epidemiological surveillance. This will enable health workers to quantify the problems, identify specific health problems or groups needing special assistance, set priorities and monitor the effectiveness of what is being done.

Finally, the management of relief has long since moved away from the notion of "givers" and "receivers." Instead the affected community must be involved as much as possible in decision-making and relief work. The ultimate yardstick to measure the success of a relief operation is whether the community has been able to recover at least to pre-disaster conditions, and is no longer dependent on external aid. ■

Epidemiology of disasters

CRED, the Centre for Research on the Epidemiology of Disasters, was established in 1973 as a research centre at the Catholic University of Louvain, School of Public Health, in Brussels, Belgium. In 1980 it became a WHO Collaborating Centre for WHO's global programme on Emergency Preparedness and Response (EPR).

Its activities are mainly concerned with research, development of information systems, training for senior and mid-level health managers in disaster epidemiology, and documentation services. In the coming years, CRED will focus its activities on applied research programmes, training courses and evaluation of projects within the framework of these priorities.

Among its operational research activities, CRED has studied the impact of the 1979 Hurricane David on health and the economy in Dominica; mortality and morbidity after the 1980 earthquake in Italy; risk factors of famine in Chad in 1985; and an emergency surveillance system following floods in Bangladesh in 1988. With WHO's Division of Emergency Relief Operations (ERO), CRED has established a computer-based country information system on the management of disasters, which is installed in WHO/ERO's computer system.

Should disaster *relief* strike - be prepared!

by Claude de Ville de Goyet and Patricia Bittner

I don't even know where to start. All I can say is that I am more than shocked and still suffering from shock with the tragedy that has occurred on the island of Montserrat. I must say that I've never seen anything like this in my whole life. I've lost everything I've got."

Outside Plymouth, the capital of Montserrat, a tiny island of 12,000 inhabitants in the West Indies, a survivor of the 1989 Hurricane Hugo movingly recounts his experiences before the cameras.

"We must have a solution for the simple reason that all these families are living out of doors... We're trying to find out about food... No one can tell us anything directly. This entire area has been forgotten; it wasn't reported as being among the damaged."

In Mexico City, anxiety runs high among the hardest-hit survivors of the 1985 earthquake. Yet despite the massive destruction, the overwhelming majority in this metropolis of 18 million inhabitants were not affected.

Dr Claude de Ville de Goyet is Chief of the Emergency Preparedness and Disaster Relief Coordination Programme at AMRO in Washington, D.C., and **Mrs Patricia Bittner** is Technical Information Officer with the same programme.

Thousands of miles away, far removed from the ravages of nature (at least for the moment), people will watch such scenes on the evening news broadcast or will read about them in the press. The pain is real, the need is genuine. How can one remain unmoved by these catastrophes? How can one possibly resist the urge to send any kind of international aid, and to send it now?

In an often-repeated reaction to sudden and brutal tragedies throughout the world, the public races to collect used clothing and canned food,

and to empty their medicine cabinets, keeping in mind the distressing scenes they have witnessed. But are these well-meaning people taking the most useful course of action, or are they perhaps compounding the problem?

A mixed blessing

It is difficult to convince anyone, particularly those who have just been hit by an earthquake, hurricane or volcanic eruption, that international assistance is a mixed blessing. It is crucial to helping a country get back on its feet. But when unsolicited aid does not meet a country's real needs, it competes for attention and space with other more pressing needs, makes the situation even more chaotic, and ultimately can lead to a second disaster.

Imagine for a moment thousands of boxes and containers stacked up at the airport or harbour of a disaster-stricken country. These hastily-assembled donations are unmarked, revealing no clue as to their contents. Do they contain unsuitable clothing, perishable food, or expired medical supplies? Or, on the contrary, are they full of urgently needed supplies? The disaster managers are already overburdened, yet the only way to find out is to take health personnel away from other more important duties to sift through the boxes, sort and classify the donations, label them and store them somewhere until a makeshift distribution system can be devised. Given the urgent problems they face, it may be weeks or months before the appro-



WHO/PAHO/C. Gaggero



Scenes of destruction in the wake of Caribbean hurricanes; a woman surveys her roofless home in Montserrat, and a twin-engined plane "parked" in the trees in Jamaica.

appropriate donations can be distributed. As for the rest, it will be stowed away, since simply disposing of it might create an unneeded political uproar.

Health assistance to victims of earthquakes, cyclones, floods and other sudden-impact natural calamities can be effective if we keep several premises in mind.

Emergency assistance should complement, not compete with, efforts undertaken in the affected country. Most sudden-impact disasters do not affect the entire country (although in the Americas the exception was tiny Montserrat which lay in the direct path of a hurricane.) Generally citizens from unaffected areas of a country donate an abundance of food, clothing and other personal items which are well-suited to local needs. What is needed

and what is not available locally: specialised skills, sophisticated technology and replacement of medical supplies used during the emergency. In the medical field, almost everyone, from the country next door to the medical associations all over the world, will tend to focus on the same, highly-publicized and visible needs. WHO's Emergency Health Kit lists those drugs and medical supplies that are appropriate not only for emergency situations but are needed under any circumstances.

Don't overreact to media images. Despite the tragic images that seem to appear virtually within hours of a major disaster, it is important to wait for the country itself, through its health services, to let the world know what its real health needs are. By providing disaster specialists experienced in the quick assessment of needs, WHO's cooperation has proved instrumental in speeding up a reliable diagnosis of the health situation.

It is unlikely that medical volunteers

from far away will save lives. The most urgent life-saving medical procedures are usually completed within the first 24 hours. It is simply not possible for medical teams from distant countries to arrive in time to save lives. Most countries in Latin America and the Caribbean have a large pool of medical personnel. They are just as moved by the tragedy and will volunteer their services. And over the last ten years, an ever-growing percentage of these professionals have received training in disaster preparedness through WHO and PAHO (Pan American Health Organization) seminars and workshops.

So what can people and agencies do to show their solidarity with a disaster-stricken country?

Recognise the fact that each country has its own way of dealing with natural disasters. Perhaps this is not exactly the way things are done in your country; maybe it takes a little longer to assess the situation. But generally, the national health services have the most realistic picture of the country's health needs and definitely the final say on what constitutes appropriate assistance.

Whenever possible, donate cash, and channel it through well-established agencies which have been active in the country even before a disaster strikes. These organizations have a long-standing relationship with the local population and are in the best position to understand the post-disaster situation. Despite the fact that most relief organizations rely on public donations to sustain themselves, reputable organizations can be expected to sacrifice an immediate and highly-visible relief effort, (and the ensuing revenue it may generate), by waiting until the country concerned determines exactly what it needs.

Don't be a burden

Refrain from travelling to the disaster site unless you are certain that you are needed and wanted. It is very easy to become a burden to the local health authorities if they have to provide shelter, food, transport and translation services for foreign medical personnel, especially when what the person has to offer can just as easily be provided by a citizen of the affected country. Although personally it is much less rewarding, it might be preferable to donate the money that would have been spent travelling to the scene of the disaster.

Do not turn the page too quickly – as the headlines fade, so too do the interest and support of the public. With

the devastating images fresh in the minds of a caring world community, a disaster-stricken country may find itself deluged with support immediately after the impact. But several weeks later, the tragedy and the urgency have faded. Other news, perhaps even that of another disaster, fill the front pages. Unfortunately, this is just when the people and the health sector are beginning to need the most help from the international community. As the Prime Minister of St Lucia (a neighbour island of Montserrat) stated after Hurricane Hugo: "The response from the international community has started to come in . . . Jamaica has sent assistance, Barbados has sent some people, Dominica has sent some assistance. The Caribbean community has sent assistance. We appreciate the immediate response. But we are looking for continued assistance over the long run to reestablish the infrastructure." Does the public hear this plea clearly enough?

After several weeks, disaster-stricken countries have exhausted their own emergency stocks and face the draining chore of dealing with medium- and long-term needs. Yet sometimes donors are more eager to spend US \$500,000 to "loan" and airlift a mobile field hospital for just a few weeks than to donate \$300,000 to permanently rehabilitate or rebuild a hospital. Some highly-visible gestures are politically good for donors, but

medically, for the victims of earthquakes and other short-duration natural disasters, they are ineffective.

It would be unrealistic and unwise to try to stem the tide of well-intentioned donations that are sent to a disaster-stricken country. It may not even be necessary. For today, health sector disaster managers are noting that the patterns of providing aid are changing, and many donations are having a positive and beneficial impact on those they are intended to assist. We would like to think that in some small measure this may be due to continuing work by such bodies as WHO/PAHO, the League of Red Cross and Red Crescent Societies, and others. But certainly WHO, as the body that coordinates the international health response to disasters, should pursue its efforts to make post-disaster assistance more effective in meeting the genuine short- and long-term needs of the victims.

A concerned public

For any country vulnerable to national calamities, it is comforting to know that, should disaster strike, they need not face it alone. It is reassuring to know that there is a concerned public, ready to send aid that transcends ethnic, racial and religious boundaries. In Mexico City, a relief worker hastily scrawled a sign and hung it over the entrance to a warehouse filled to capacity with donations for the victims of the devastating 1985 earthquake. This sign probably said it all more succinctly and movingly than anything else. It read: "Gracias, hermanos" - thanks brothers. ■

Relief supplies arrive in Montserrat, hard-hit by Hurricane Hugo in 1989.



A living library

The video crew of the Pan American Health Organization (PAHO/AMRO) has travelled with the organization's Disaster Assessment and Response Team to the site of every major disaster in the Americas since 1985. Hurricanes can give them as much as two or three days warning. But they are so unpredictable that the crew may be left sitting on the wrong Caribbean island for a day or two until weather conditions allow them to reach the stricken area.

At other times, there is no advance warning. This was the case when the Nevado del Ruiz volcano erupted in Colombia, burying the city of Armero under tons of mud and killing 23,000 victims. A day's work had just begun when word of the disaster reached PAHO. As the Organization's Emergency Preparedness Programme went into top gear, the video crew scrambled to pack their gear, filling three trunks that weighed more than 100 kilos.

Under these and other difficult circumstances, PAHO's video and photo team has brought back a wealth of material on the health consequences of disasters; everything from the disaster's impact on hospitals and clinics to damage to water supply systems; from improvised vaccination campaigns to the mass handling of corpses. This material has been greatly enriched by on-the-spot interviews with survivors, disaster managers, national health authorities, non-governmental organizations, and others.

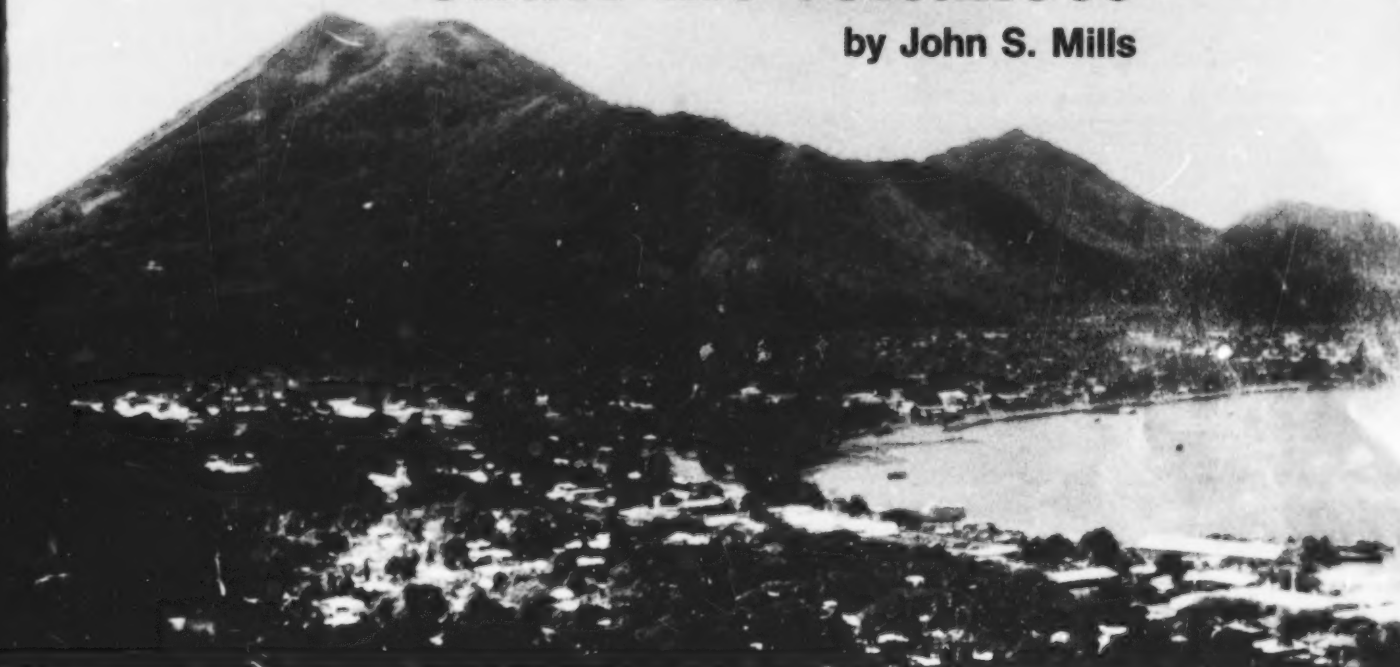
Today, PAHO's library of footage on the health aspects of disasters is certainly among the best in the world. But it is more than just a collection of videotapes. It is a "living library" that preserves the institutional disaster memory of the health sector in the Americas. It is also the source for a variety of disaster preparedness training programmes produced through PAHO.

In recent years, the documentaries have reached wider audiences. *Myths and Realities of Natural Disasters*, made primarily for the general public, has also been used frequently by the media and groups working in this field. Its novel approach debunks traditional myths associated with the impact of disasters on health, just as mythological explanations of the origins of disasters have been dispelled by scientists. *Myths and Realities* has also been released in French, Japanese, Portuguese, Spanish and Creole, and more than 1,000 copies have been distributed worldwide.

WHO/PAHO

Under the volcanoes

by John S. Mills



The town of Rabaul, on the island of New Britain, part of Papua New Guinea, is actually built within an active volcanic caldera. Now flooded by sea water, the caldera was formed several thousand years ago, but the town remains vulnerable to possible volcanic activity from no fewer than six surrounding peaks and from an inlet of the sea, Sulphur Creek – an area of hot springs and volcanic gas discharges.

The first written record of volcanic activity in the area appears in the log of the ship "Swallow", whose captain, the explorer Philip Cartaret, reported on 10 September 1767 that he had seen "... a great smoke, and imagined it ... from a Volcano."

The most recent eruption, which cost some 500 lives, started initially from the volcano Vulcan just after 4 pm on Saturday, 29 May 1937. There was then no contingency plan for action in the event of an eruption, even though the last volcanic activity had occurred a mere 60 years previously – only a moment ago in geological terms. The town had in 1937 a scientific establishment but there was no volcanologist or seismographic equipment. But for a fortuitous combination of circumstances, the death toll could have been much greater.

As the eruption began, people were drawn to it by curiosity. The indigenous Tolai people took advantage of the abrupt emergence of a previously submerged reef to gather stranded fish; some European residents took a small boat and rowed out to Vulcan island for a closer view of the phenomenon. But it soon became clear that a massive eruption was starting.

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Hundreds of people living close to Vulcan must have perished in the early stages of the eruption as the 10-km-high column of ejected material lost its upward momentum and crashed to earth again. Such phenomena were responsible for 3,000 deaths during the 1951 eruption of Mount Lamington, on the main island of New Guinea.

Within hours, the daylight had turned to a blackness more absolute than night as a choking cloud of dust and ash was blown over Rabaul by the south-east trade winds.

Most of the 6,000 people had little more than a few minutes to prepare for flight from the terrors of the dust and ash cloud, and the pumice fallout which began to rain down on the town.

Many fled with only the clothes they were wearing. The town's dentist fled in pyjamas and slippers. Intense electrical storms and torrential rain caused by the ejection of large volumes of water vapour and sea water into the atmosphere added to the people's terror.

By the time the formal decision to evacuate the town was taken, shortly after daybreak on the Sunday, the town was described by one eyewitness as being "... covered in a mantle of deathly grey." Some roads were impassable as layers of pumice and ash built up, and tree branches, similarly laden with fallout, broke and crashed into the streets. The power supply failed and the radio transmitting station was overwhelmed by ash and pumice.

In the absence of an evacuation plan, most people fled by motor vehicle or on foot, to the north-east, over the caldera wall to the beach at Nodup, where a seaborne evacuation by vessels of all sizes which had collected there by order of the authorities proceeded in an orderly fashion. Others, far fewer, fled to the north-west

The idyllic peace of Rabaul, in the South Seas, was rudely interrupted in 1937, when the surrounding hills erupted.

and fared less well, as they were still in the path of the fallout from Vulcan, pushed by the prevailing south-east winds.

But as the first flotilla of rescue boats set sail for the safety of Kokopo, on the coast 30 km to the south-east, a second dark eruption cloud shot upwards from close behind the hills over which the evacuees had just fled. The volcano Tavurvur had added its eruption to that of Vulcan.

This caused great alarm. If both Vulcan and Tavurvur had erupted, could not Kabui, the "mother" of those two volcanoes, do the same? The hitherto orderly evacuation at Nodup became tense. Lifeboats, pinnaces and cargo lighters were grossly overloaded in ferrying people to the trading vessel "Montoro," which had steamed all night in response to an urgent summons from Rabaul. The captain and crew had some advance indication of the Rabaul events - ash had fallen on her decks as far as 240 km away. Captain Mitchie estimated that when the "Montoro" sailed for Kokopo at sundown on the Sunday, she was carrying 5,000 people. Her usual complement was 50. Indeed a strong rain squall struck the starboard side of the ship and only hurried action by the

crew effected a rapid redistribution of weight and narrowly averted a disaster.

At dawn on Monday, the picture in Rabaul was one of "... desolation, the town covered in a deathly grey, roads were jungles of fallen branches and ankle-deep in mud." The acting police superintendent and those few of his officers who remained in the town had certain priorities to attend to: to bury the contents of sanitary pans (there was no mains sewerage system in Rabaul at that time); to keep a road clear to Nodup, and to safeguard property and prevent the return of unauthorised people and possible looting.

Mission hospital

It was fortunate that close to Kokopo was (and is) a large mission station, Vunapope, whose extensive buildings were now used to accommodate the evacuees. Vunapope also had (and has today) its own hospital, which was able to accept patients evacuated from the Rabaul hospital.

There may have been as many as 10,000 people accommodated at Vunapope. The staff of the Public Health Department were well aware of the potential dangers inherent in having such a mass of people so

closely crowded together. Water had to be shipped in, while mosquito nets and other medical supplies ordered by radio, arrived from Australia in a week. Perhaps remarkably, there is no record of any disease outbreak among the evacuees.

That the 1937 eruption occurred in daylight, on a weekend Saturday, when most families were together in their homes, that the sea at Nodup was unusually calm, and that there existed near to Kokopo a mission station which was able to cope with a large number of refugees, constituted, as the official 1937 report to the League of Nations stated "... a fortuitous concurrence of so many favourable factors as could scarcely have been anticipated, and ... it must not be taken for granted that such a combination (will) necessarily exist when next Rabaul has to be evacuated."

Intense bombing of Rabaul towards the end of World War II virtually destroyed the town. The destruction by

Dramatic photos taken during the 1937 eruption of Vulcan. Choking clouds of dust and ash as well as intense electrical storms terrified the people of Rabaul.

man was much greater than that inflicted by the combined assault of Vulcan and Tavurvur.

Yet what seemed to many to be an opportunity to relocate the town to a geologically safe place was not taken. Today Rabaul, still worried about and affected by the volcanoes (six people died of toxic gas inhalation in 1990, on the slopes of Tavurvur) has a population of about 16,000; a total of 80,000 to 100,000 live within the caldera. It is accepted that another eruption is inevitable – but when?

The volcanological observatory, located on the caldera wall, has found evidence of over half a million years of activity at Rabaul. Major events – which in geological terms means 10 cubic kilometres or more of ejecta – have happened roughly every thousand years. “Small to moderate” eruptions – those which, like major ones, have public health implications – have occurred at a frequency of from one to 59 years. The last was almost 48 years ago.

Potential eruption sites are all close to the town and may not be limited to those which have been active in historical times. New sites may appear. Some

or all of those living within the caldera, depending on the prevailing weather conditions and locations of vents, will be exposed to such hazards as volcanic earthquakes, tsunamis (destructive waves), poisonous gas discharges and mudflows.

One of the most alarming aspects of the 1937 eruption to the residents of Rabaul was the intense electrical storms and torrential rain. “The thunder was continuous and louder (even) than the rumbling of the volcanoes,” reported the *Rabaul Times*. Torrential rain will probably be even more devastating in a future eruption, as much of the area has been subjected to tree felling and small-scale agriculture on the slopes around the caldera.

Ash fallout is likely to be the major concern in future eruptions similar to or greater than 1937. Not only is property directly damaged, but psychological effects – especially fear and disorientation – can be induced by the sudden descent of stygian darkness. Disruptions to transport and communication links may be widespread or total.

Mr Nason Paulias, whose home is

near Vulcan, is the chairman of the Provincial Disaster Committee, and would be the local controller in the event of an alert being declared. Mr Paulias makes the point that the present generation “don’t worry” about the potential disaster, though their grandparents can and do tell them vivid stories.

Under the current Disaster Plan alerts are staged according to the likely time of the next eruption. Stage one, in force virtually all the time, implies an eruption expected within years or months; at the other end of the scale, stage four implies that the situation is critical and an event may take place within days or even hours.

Annual rehearsals

The Provincial Disaster Committee holds monthly meetings, and has annual rehearsals of the movements of transport, equipment and personnel. Various sub-committees are charged with appropriate responsibilities – evacuation, public information, rescue, public health, temporary accommodation, feeding and so forth. The non-governmental organizations are also represented. The plan lays out clearly the responsibilities of all coordinators including their training responsibilities.

A former World War II airstrip is maintained in readiness, fuel supplies are kept at “safe” locations, and the Food Plan is designed to cater for 60,000 people for seven days.

The health authorities will, amongst other activities, discharge all walking patients, transfer all those in hospital beds to safe areas, as well as the blood bank, and cease all but emergency services. At the national level there are plans for further evacuation from the disaster area to more distant areas.

Food resources within Papua New Guinea should normally be adequate. Mr Leith Anderson, the National Disaster Coordinator, is confident that, in the event of a 1937-scale eruption and even with today’s much greater population, Papua New Guinea would be self-sufficient for up to five days, and considerable financial resources are at Mr Anderson’s disposal at short notice. Thereafter the country may have to request some overseas or international assistance, including that available from WHO.

If ever the worst came to the worst and Rabaul was totally devastated, there are contingency plans to relocate the town at Kokopo. But the cost involved would certainly entail overseas funding support. ■

Should disaster strike

The majority of mankind enjoys life on a peaceful planet. But millions have no choice but to live in regions that are regularly buffeted by cyclones, inundated with floods or rocked by earthquakes. The International Decade for Natural Disaster reduction 1990-1999 (IDNDR) offers an opportunity for the international community to work together with volunteer agencies and other non-governmental bodies to find ways of preparing for the worst that natural disasters – and indeed man-made disasters too – can do.

If we cannot prevent such catastrophes, we can predict some. We can certainly mitigate their effects by ensuring that rescue services are competent and well trained, by building stronger homes and workplaces, by keeping stocks of the right foods and medicaments, by safeguarding drinking water and knowing how to cope with disrupted sanitation.

Response to disasters also entails longer-term thinking and planning – for instance, remembering the need to rehabilitate survivors and re-build health services.

World Health Day 1991 invites everyone to think ahead and Be Prepared!

Scenes of famine in Africa, quake-stricken ruins in Mexico and oil-spillage clearance in Europe contrast with an orderly disaster drill in Peru, as youngsters act the role of injured survivors.

L. Serrano (C)



WHO/Médecine sans Frontières Belge



WHO/PAHO

DISASTER STRIKES!!

Test your knowledge and ability to react appropriately

Comment on the following statements by ticking either True or False and then turn to the correct answers and work out your score.

1

In case of disaster, send out an immediate appeal for international medical personnel.

True ☐

False ☐

2

When a disaster occurs, people in other countries should not react by immediately organizing the collection and despatch of whatever can be obtained in the way of medicines, clothing, equipment, etc.

True ☐

False ☐

3

A few weeks after a disaster occurs, things are usually back to normal and most of the major services are restored.

True ☐

False ☐

4

Disasters cause fewer deaths in rich countries than in poor countries.

True ☐

False ☐

5

Disasters bring out the worst in human behaviour.

True ☐

False ☐

6

When disaster strikes, outbreaks of infectious diseases are inevitable due to the presence of unattended dead bodies.

True ☐

False ☐

7

Mass hunger can be avoided after a disaster strikes.

True ☐

False ☐

8

Following a disaster, it is best to house people as close as possible to their own dwellings rather than in settlement camps.

True ☐

False ☐

9

In case of limited food supplies following a disaster, priority should be given to the young and the old.

True ☐

False ☐

10

When disaster strikes, each individual should take care of his own family and belongings first.

True ☐

False ☐

11

The intensity of two recent earthquakes in Armenia and San Francisco was the same but in Armenia several thousand died whereas in San Francisco sixty people died. This is mainly due to the difference in earthquake-proof construction.

True ☐

False ☐

12

The Sahelian drought is caused by a combination of climatic and man-made factors.

True ☐

False ☐

Correct Answers

Calculate your score by counting 10 points if you answered correctly and 0 points if your answer was wrong.

1. **False** Local health services are normally able to cope in case of disaster. They have the advantage of speaking the local language and are familiar with the health service infrastructure. Foreign teams may provide specialized skills and equipment, but they have to be housed and fed.
2. **True** A fast international response to disasters is not necessarily the best solution. An evaluation of the most urgent needs should first be made so that communication channels do not become blocked by unessential items or by outdated medicaments and food products.
3. **False** Whilst the disaster may disappear from the news headlines, the impact may last for years. There is often permanent damage to water supplies and health services; reconstruction and rehabilitation are time-consuming and costly.
4. **True** Poverty leads to poor living conditions and the poor are more vulnerable in case of disaster. The richer countries have the resources with which to rebuild their lives and are usually better prepared.
5. **False** Whilst some sensation-seeking scribes might encourage us to believe that looting and other forms of selfish behaviour are common following disasters, on the contrary, it has been shown that disaster situations bring out the best in people and solidarity is strengthened.





Por cortesía del Diario El País / Autor: José María Ponce

6. **False** Dead bodies do not cause epidemics or disease transmission during the first 72 hours; after this, the decom-

position process may cause contamination of water supplies. First priority following a disaster should be to care for the injured.

7. **True** Disasters such as earthquakes do not damage crops although drought, hurricanes and floods do. However, if adequate preparations such as storage and rationing of foods have been properly organized, there should not be any serious hunger. When international assistance is requested, seeds and tools are often more important than food.
8. **True** Keeping people as close to their homes as possible is best; settlement camps should be a last resort since they create other problems. International assistance in the form of building materials and tools may be desirable.
9. **False** Careful rationing should be organized so that everyone is fed. Those involved in salvage work and reconstruction are particularly in need of a regular food supply.
10. **False** Team work is the most efficient way of dealing with the aftermath of disaster. Training of teams prior to a disaster so that each person knows his or her responsibilities is indispensable for the proper management of a disaster.
11. **True** Strict adherence to the building code in earthquake-prone areas significantly diminishes the loss of human life.
12. **True** Overgrazing, a failure to plant trees and mismanagement of land use lead to soil erosion. In the Sahel, when added to the effects of climate change, all this means an advance of the desert.

Result

Since the beginning of time, our fragile earth has suffered and will continue to suffer from disasters, both natural and man-made. The disasters themselves may not be preventable but the unnecessary toll of death and injuries can be mitigated.

The points raised in this test are, of course, not exhaustive but they do cover some of the situations you may encounter in times of disaster.

If you scored 90 or more points: Bravo! Your reactions are excellent. Your participation in preparedness and response activities would be invaluable.

If you scored between 50 and 90 points: You have understood most of the important priorities but your reaction and knowledge can still be improved.

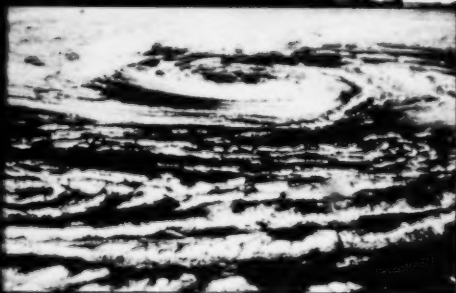
If you scored less than 50 points: You are on the right road and full of good intentions, but your knowledge of how to deal with disaster situations needs to be improved.

Test created by Dorothy Hoffmann and Gilbert Padey, WHO, Geneva, Switzerland



WORLD HEALTH ORGANIZATION
Geneva, Switzerland

- be prepared!



WHO/PAHO

A volcano overwhelms a town in Iceland, crushing houses under lava and ash; floods put city streets under water in Bangladesh, making boatmen of the trishaw drivers; Hurricane Hugo leaves a shambles of wrecked buildings, boats and trees in the Caribbean. Inset above: Whipping up a storm; viewed from an orbiting satellite, a hurricane swirls viciously over a huge area of the planet. Left: After an earthquake disaster in Latin America, helpers pick desperately through a plethora of drugs, sent by enthusiastic foreign donors but lacking proper labelling in local languages. The moral: aid must be appropriate.

NGOs have proved their worth

by Bruce Dick

While the work of the International Committee of the Red Cross (ICRC) continues to focus on the suffering caused by the wars and other conflicts that rage around the world, the League of Red Cross and Red Crescent Societies (LRCS) prevents and alleviates suffering in other "battlefields." These include sudden impact disasters such as earthquakes in Iran, China, Armenia or the Philippines, floods in Bangladesh or Sudan, hurricanes affecting the Caribbean or the Pacific islands, and technological disasters such as Chernobyl.

The League also prevents, prepares for, and responds to the slow onset disasters, such as famines and the needs of refugees and other displaced communities. Furthermore, many National Societies are involved with the "silent emergencies" which continue to kill and disable millions of children every year, such as diarrhoea and the vaccine-preventable diseases, and with such new 20th century disasters as AIDS, the abuse of drugs and environmental pollution.

Of perhaps even greater importance, however, is the National Societies' fight against the precursors of most of these disasters: poverty, inequality, illiteracy, discrimination, deprivation and other factors which increase people's vulnerability and decrease their capacity to cope with adverse changes in their physical, biological, social and political environments.

Because all of these "disasters" are interlinked, the responses to them by the LRCS and other non-governmental organizations (NGOs) also need to be interlinked. Responding through development programmes to the hardships of daily living which face so many poor and under-privileged people will help to decrease their vulnerability, and increase their capacity to respond to the other "high visibility" disasters, to which they are disproportionately exposed. Similarly, through disaster preparedness, relief operations and rehabilitation or recovery programmes, communities that are vulnerable can be supported and assisted in ways that contribute to their

general development.

NGOs have an essential, sometimes unique role to play in preventing, preparing for, responding to and recovering from disasters. They are often in a position to identify priority issues and highlight defects in existing systems in a way that would be difficult for governments or intergovernmental organizations because of bureaucratic,

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political or other constraints. They can also arouse public concern and mobilise financial and other resources (including volunteers) in ways that governments and intergovernmental bodies cannot. They are able to channel people's very genuine desire to help other people who have been affected by disasters.

By providing information to concerned people they can help them to understand the priority needs, and the root causes of the problems faced by disaster-affected communities. This "donor education" is very important in order to avoid unrealistic demands and pressures; people need to know that disaster-stricken communities are not helpless and apathetic, and that pictures of starving babies may give completely the wrong impression and generate the wrong response. This may prevent the supply lines from becoming clogged up with useless or unnecessary donations, and helps to ensure that the available resources are used (efficiently and effectively). In some circumstances, no response may be better than a well-meant but inappropriate response. Disaster education is an essential aspect of disaster preparedness.

It is now widely accepted that, when catastrophe strikes, communities themselves, often supported by national organizations, respond with energy and imagination to their own

immediate needs. By the time the external medical teams and field hospitals arrive, the dead have been buried and the injured are on their way to recovery. The cost-effectiveness of external medical teams is small in comparison with investments in national disaster preparedness. With Red Cross or Red Crescent Societies in 149 countries, the League is in an excellent position to contribute to disaster preparedness at national level.

Of course, an involvement with relief operations can itself make an important contribution to an NGO, increasing its credibility and potential to recruit good staff and volunteers, to develop partnerships with other bodies and to attract funds. The Ethiopian Red Cross is a good example of this. Its involvement with many relief operations in Ethiopia has enabled it to expand and develop as a major national NGO, and it is now involved not only with disaster response but also with disaster preparedness, disaster prevention, primary health care and other development programmes.

The Bangladesh Red Crescent has been building cyclone shelters to provide vulnerable communities with shelter and safety when cyclones strike. These shelters are not only preventing death and injury from cyclones, but they are also being used to save lives in non-cyclone periods through their use as centres for community development activities. Disaster preparedness thus contributes to development.

On the other hand, the Indian Red Cross Society's Child Alive scheme is a development programme that focuses

Essential supplies being safely stored in an African country. NGOs have an essential role to play in preparing for disasters.



WHO/OXFAM/J. Hartley

on the prevention of mortality and morbidity from diarrhoea and the vaccine-preventable diseases. When epidemics of cholera strike in the programme area, it is the Child Alive volunteers who are in the best position to respond because of the skills and information that they have gained through their Child Alive training. The Philippines Red Cross is involved with the national Barangay Health Worker Programme. After the recent earthquake in the Philippines, the people who had been trained in this programme were in a position to respond to the health needs of people affected by the earthquake.

Blood donors

The Red Cross and Red Crescent's blood programme has implications for both disaster preparedness and development. When increased demands for blood and blood products are made, it is essential to have a functioning Blood Transfusion Service that is able to recruit donors, collect and distribute the blood.

Operational research matters too. A recent evaluation of the first aid programmes of National Societies in Francophone Africa emphasised the importance of being aware of the differences in the disasters encountered in different countries and communities when disaster preparedness programmes are being drawn up. Issues of appropriateness and equity, and a community-based approach, are as important in disaster response as they are in other health programmes. Much of the basic epidemiology of disasters has been generated and carried out by people working in the field for NGOs. Through descriptive and analytical studies, NGO staff have been able to outline priorities and identify the major obstacles which prevent appropriate solutions from being implemented.

Coordination with governments and with other organizations is usually excellent, resulting in the development of consensus guidelines and standards and encouraging a strong stand against practices that are known to be potentially harmful, such as the distribution of powdered milk in disaster situations, when the well-recognised dangers of powdered milk become greatly magnified.

Involvement of NGOs in drawing up national disaster preparedness and response plans is vital. The Pan-Caribbean Disaster Preparedness Programme is an excellent example of regional cooperation between inter-governmental bodies, governments

and the Red Cross Societies.

At a global level, the LRCS has collaborated with WHO in producing training materials, has participated in advisory groups and consultations, and – along with other NGOs – has carried out health and nutrition programmes for UNHCR (the Office of the High Commissioner for Refugees) in several countries.

NGOs have proved their worth in developing new initiatives and innovative programmes, and in the field of disaster preparedness and response there will be a continuing need for this. For example, the psychological needs of disaster-affected communities, as well as their physical needs, are now better understood, so the Danish Red Cross has decided to build on a traditional activity and start providing training in psychological first aid.

Greater attention is also being given to the rehabilitation and recovery phase of disaster response. Too often, once the initial "emergency" has passed, international concern, the funds and other resources move on with the television cameras to the next disaster! This phase has provided the LRCS with a number of opportunities, from spearheading innovative programmes, such as the spinal injuries unit that has been started after the Armenia earthquake, the introduction of primary health care components alongside the rebuilding programme in Mexico after its earthquake, integrated health and development programmes to deal with famine in Ethiopia, and programmes to help redevelop the health infrastructure following the landslides in Colombia.

Cambodian refugees under canvas in Thailand. The LRCS has carried out programmes for the Office of the High Commissioner for Refugees (UNHCR) in several countries.

Although prevention of disasters is difficult, increasing attention needs to be paid to developing early warning systems that help to mitigate their impact and prevent the common diseases that follow in their wake. Several national Societies have taken up this challenge, for example, the famine early warning system involving the Sudanese Red Crescent, the Bangladesh Red Crescent's cyclone early warning scheme, and the nutritional surveillance activities of the Somali Red Crescent.

NGOs will need to be ready to respond to more and more disasters in the years ahead as a result of technological hazards, population growth, economic decline, environmental degradation, and increased awareness – (many disasters still never reach the television screens). NGOs' efforts will be most effective if there is increased solidarity between them, and more effective partnerships with governments and intergovernmental bodies.

There are many things that NGOs can do more effectively than their partners because of their community level activities, their capacity to be innovative, their focus on vulnerable communities, the trust and credibility that they have built up over the years, and their capacity to listen to and involve the people. ■

Superfluous to requirement!

by John Bland

Dr Mohammed Assai expressed it all quite simply. "The aid volunteers themselves are posing a problem. They all need food and water, yet the supply lines have been totally disrupted. They all need latrines, since the sewers without exception have been totally disrupted."

Dr Assai talked to me in a windowless freight container, hot as an oven but with a good quality Persian carpet as flooring, which served as headquarters for him and his 120-strong rescue team from the distant Iranian province of Yazd. All around his little encampment lay the smashed ruins of what had been the thriving small town of Manjil until the earthquake of 21 June last year struck in the middle of the night. Manjil's high street had been Main Street Anywhere; a wide road lined with solid brick and breeze-block shops, offices and homes. Many of the buildings had been reinforced with steel girders. But the power of the quake was such that the girders now poked futilely out of the

rubble, twisted into grotesque shapes.

The very mountains had been shaken. The road from Teheran to Manjil crosses a huge plain, then descends into a long ravine where the first shattered houses suggested we were entering a war zone. And the rocky slopes above were scored and littered with immense rockfalls. Where houses lay in their path, they added to the human toll of the disaster which, within one week of the quake, was assessed at 37,000 dead, 38,000 injured and 350,000 homeless.

Mr John Bland is the Editor-in-Chief of World Health.

At Teheran Airport I had seen at least half a dozen eager volunteer teams from many countries. They brought with them kitbags bulging with first-aid equipment, oxygen cylinders, stethoscopes. There were even tracker dogs, trained at locating survivors or bodies in the ruins.

Some of these volunteers told me they didn't know where to go to begin

the process of reaching the disaster area; they had no names of contacts for instructions and just hoped to "muddle through." There were language problems; none of the volunteers spoke Farsi, and in towns such as Manjil few people speak anything else. Later, in a Teheran hotel, I heard some grumbling from foreign aid teams, who felt frustrated at not getting to the right spot, or thought they had been accorded a low priority when they did get "where the action is."

It was Dr Assai, again, who commented: "I guess that about 8,000 of the 12,000 inhabitants of this town died in the earthquake. Of the survivors, some 60 per cent have left the region to stay with relatives or friends far from here. But the Iranian soldiers and volunteers, and all the volunteer teams from abroad, now outnumber the remaining survivors by five times or

The face of suffering. In a Teheran hospital, a little girl recovers from her injuries after being rescued from her ruined home near Rudbar.



more, and this in itself poses severe health problems." He added: "The only 'experts' we need now are in sanitation and healthy water and, after that, in rehabilitation."

His own team from Yazd Province had arrived within 48 hours of the 7.3 Richter scale earthquake which devastated all the area around the large town of Rudbar, 500 km. north-west of Teheran, the smaller towns of Manjil and Lushan and all the surrounding villages. There had been a frantic struggle to find and extricate survivors from the rubble, then to bring out the bodies and bury them in mass graves.

After a frugal lunch of chicken and rice, washed down with bottled water, as we squatted on the Persian carpet in the hot container, Dr Assai showed me with some pride how his team had improvised washing and sanitary facilities with material commandeered from an adjoining builder's yard. The team slept in military tents pitched among the wrecked homes.

Others I talked to in Iran confirmed Dr Assai's view that many (not all) of the enthusiastic young foreigners had come too late – and too many. Eight long years of war with neighbouring Iraq had inadvertently equipped Iran with the skills to handle a catastrophe with extraordinary efficiency. Mobile field hospitals, emergency dressing stations, military surgical teams – all had been drafted to the area. Within three days they had brought out the living and the dead from the ruins, ensured medical treatment for the injured and dispatched the worst hurt to hospitals in Teheran or other large towns. The big modern hospital outside Rudbar was itself a casualty; its heavy concrete walls now tilted at precarious angles, and at the entrance to what had been an operating theatre a clock's hands were stuck at 35 minutes past midnight, when the world stopped.

Further after-shocks

Tented encampments sprang up and some of these housed survivors. But most local people – rightly in fear of further after-shocks – had made their way to stay with relatives living far away. One worker in the ruins told me: "There is nobody local to help; they were all dead or injured here."

The Iranian army was efficiently running what remained of the towns, keeping traffic moving – much of it trucks bringing foodstuffs and vital equipment – and warning rash visitors like myself against seeking vantage points for photographs in buildings still standing but needing only an incau-

tious footfall to topple them over.

The Iranian Red Crescent too had planted its emergency tents everywhere, and had done sterling work in carrying out amputations and saving lives. There would be longer term health consequences to deal with too, as I discovered in an old bus parked under olive trees in Rudbar. A Pakistan Army medical team was using the bus as a clinic. A young woman, apparently uninjured, had come for a consultation. The Pakistan major in charge told me she dare not go to sleep. "If I fall asleep, I only dream of death," she told him. Her only child had died in her arms when the roof of their home fell in. I asked the major: "A boy or a girl?" The woman understood or sensed my question. "Tochtir," she said; a daughter. And her eyes filled with tears.

Dr Omer Suleiman, the WHO resident representative in Teheran, was the first international expert to reach the site, and promptly sent back a list of urgent requirements to UNDRO in Geneva. Subsequently WHO made available US \$100,000 and eight tons of medical kits and other supplies. The Organization's Eastern Mediterranean Regional Office allocated an additional \$50,000 for urgent needs not met by donors.

Dr Suleiman also located potential donors for a prefabricated hospital in the stricken province. He later arranged an inter-agency workshop on emergency preparedness in Iran in the context of the country's efforts to draw up a National Emergency Plan. The Plan will look closely at housing design, since it was clear that many lives could have been saved if ordinary houses had been expressly built to

The very mountains shook. Three days after the disastrous Iranian earthquake, a second tremor sent dust rising from fresh rockfalls, and was reported to have killed and injured rescuers still digging in the rubble.

withstand severe quakes.

Within one week of the disaster, most of the foreign aid visitors, however well-meaning, were frankly "superfluous to requirement." Their vehicles were adding to the long queues of local traffic at critical points where roads were perilously cracked or only partially cleared from landslides. Once in the little townships, they had difficulty finding food and water supplies; and for sanitation, they had to take to the fields or woods. Might the money they had spent in coming to Iran have been better employed in cash payments directly to the emergency preparedness authorities in Teheran?

I am anxious not to paint too black a picture. Another disaster-stricken country might be less mobilised than Iran to handle the chaos that follows hard on disaster. In different circumstances the foreign aid teams have frequently saved lives and, by tending the injured, have eased the burden on the existing health services.

The real need is for all disaster-prone countries to have some focal centre whose telephone and telefax numbers must be made known to all serious volunteer aid agencies. And the national centre's staff must be capable of making snap decisions as to whether foreign teams are needed and, if so, what sort of equipment they should bring.

Health services are casualties too

by John Ash and Mike Gomez

At 4.26 pm on Monday 16 July 1990, the Executive Committee of the Philippine Department of Health was in full session. Then the earth began to move. For an eternity, in fact no more than a minute, buildings swayed and cracked, roads undulated like waves on the sea, and literally millions of people panicked. They poured into the streets, desperately to get away from high buildings. They hurt each other more in the stampede than if they had stayed put as the manuals advise, crouching under a strong beam or even a heavy piece of furniture. But panic sows its own seeds, and it takes less than seconds for people to realise how small and vulnerable they are when faced with the full force of nature.

The Secretary of Health, Dr Alfredo Bengzon, did not panic. Power and telephone communications were the first to go down. Leaving a dazed Executive Committee behind, he rushed to his car outside with its radio telephone. Within minutes he had found an open line and was speaking live on national radio, appealing for calm. It was the Department's first intervention in the worst Philippine earthquake for 22 years.

How bad the quake was would only become known later. In fact, it measured 7.7 on the Richter scale. Manila, 137 km from the epicentre to the north, was badly shaken, and many buildings were seriously cracked. The real drama was elsewhere. In Cabanatuan, provincial capital of Nueva Ecija, and only 40 km from the epicentre, tragedy struck the crowded six-storey Philippine Christian Colleges, burying 274 of its high school students under tons of concrete rubble; 154 of them died.

The city of Baguio is the summer capital of the Philippines, famed as a tourist resort with its pine trees and cool climate, and home to over 150,000 people. For 48 hours, Baguio was completely isolated. Electricity, water and communication lines were

destroyed and all roads cut by landslides, often from deforested hills and mountains. Luxury hotels, schools and private homes lay in ruins. Terrified by after-shocks, people left their damaged houses to seek shelter in open spaces, without food or fuel, and drenched by the season's cold and unremitting rain. Hospital patients had to be moved from unsafe wards to tents in the open air. Only after three days was a main road cleared to allow supplies to begin to pour in. By that time, nearly 400 people were dead and 700 injured.

Mr John Ash is Acting Public Information Officer with WHO's Regional Office for the Western Pacific and **Mr Mike Gomez** is Information Director of the Philippine Department of Health.

Despite dramatic rescues from the rubble up to two weeks after the disaster, the final toll was a heavy one for the nation: over 1,600 dead, thousands more injured, and billions of

dollars needed to repair the damage.

Health services are casualties of disasters too. Twelve hospitals would require "total reconstruction". Medical equipment is destroyed, especially breakable items like oxygen gauges, anaesthesia machines, microscopes, clinical glassware and laboratory equipment. Health personnel lose their homes. Their own children and relatives are trapped or injured. Two midwives were buried in mountain landslides and departmental vehicles stranded on blocked roads.

Yet all hospitals and medical centres managed to operate throughout the chaos of the acute emergency stage, even with reduced staff levels. One rare piece of good fortune was the relatively high level of available stocks, since a substantial delivery of supplies had just been made. Medical teams under senior officials were mobilised from the capital to assist their provincial colleagues.

Fear lent powerful energy to rumours of epidemics among the thousands of people displaced from



Racing against time, volunteers and soldiers look for survivors in the ruins of the Philippine Christian Colleges.



their homes, cold, wet and hungry before supplies managed to get through. Most of the affected areas already enjoyed high immunization coverage, officials pointed out, and many health personnel were already trained in case management of diarrhoea and acute respiratory infection, the two likely candidates for epidemic outbreaks. The Department's strategy for epidemic prevention included sanitary latrine construction, water supply disinfection, disease surveillance at health centres and constant public information to allay fears and avoid panic.

Unfounded fears

Recent earthquake experience shows that, with proper application of current knowledge of the transmission and prevention of diseases, epidemics do not break out. But frightened people were convinced otherwise, and there was concern that unfounded fears would divert attention and resources from urgent relief measures and the normalisation of power and water supplies.

Supplies and their delivery are crucial to the success of relief operations, the Department acknowledges, and much can be done to improve systems in anticipation of future emer-

gencies. Better, stronger communications lines are vital. Phones and many radio antennae are especially vulnerable. Priority transport for the health sector must be anticipated as a necessity, especially where, as in Baguio, helicopters and their limited space are the only option.

Low-tech supplies are needed most: tents, cadaver bags, water purification chemicals, portable emergency generators. Low-tech help, too. Foreign teams poured into the country in the aftermath of the July quake, some with the most sophisticated search equipment on earth. While all efforts were appreciated, most highly praised were the medical team from Singapore who, amid everything else, were not afraid to get right down to digging latrines.

WHO responded too with emergency funds, used principally to restock depleted medicines. Other agencies helped generously in their own fields. Yet the most useful help was to be well prepared on the ground. No one in the Philippines speaks of earthquake prevention. Tremors will come again, as will other natural disasters, causing their terrible burden of damage. Being better prepared is what will mitigate the scale of loss, and that, as everyone agrees, is a process of development. ■

Relief supplies pile up at Baguio airport – the only way in or out of the city for several days. Below: Despite his pain and shock, a survivor in Baguio City signals bravely to reporters.



WHO/WPRO/E. Usapdin

Myths and lessons

by Andrei K. Kisselev

The earthquake which devastated four major towns in the northern part of the Armenian Soviet Socialist Republic in December 1988 killed some 25,000 people, and destroyed or seriously damaged 25 hospitals and 225 health posts. Almost 15,000 were rescued alive from the ruins.

Obviously a heavy load was imposed on the remaining medical facilities. It was perhaps remarkable that only 13 per cent of those who received care at a hospital died in the hospital.

The response from the Soviet authorities, combined with that of the local Armenian people, plus the response from other governments and the general public, was both outstandingly generous – and difficult to manage! It was the first time since 1923 that the Soviet authorities had accepted international disaster relief assistance.

International voluntary aid came spontaneously from 70 countries and the total direct contributions exceeded US \$150 million (not including contributions and services in-kind, for which no cost value could be estimated). Even so, this international aid comprised only seven to ten per cent of the total relief assistance; the remaining 90 per cent came from Armenia itself and from other parts of the Soviet Union.

Since many of the health professionals present in the stricken area at the time were killed or injured, health professionals from Yerevan were the first to offer services to survivors. On the second and third days they were joined by health staff from other republics and regions of the Soviet Union. Several national Red Cross societies sent rescue teams with dogs specially trained to sniff out human victims under the debris. In the circumstances of that time, these proved very effective.

Most of the international relief was

channelled through the League of Red Cross and Red Crescent Societies (LRCS), whose headquarters in Geneva, Switzerland, began a major fund-raising campaign for the earthquake victims; a representative of the League arrived in Armenia on the second day after the disaster.

Dr Andrei K. Kisselev, formerly Under-Secretary General with the League of Red Cross and Red Crescent Societies, is now Executive Vice-Chairman of the Russian Foundation for Social and Health Assistance, Moscow.

By only the *fourth* day, the following message was disseminated worldwide: "No need for more medicaments or medical equipment; no need for additional blood products; no need for more medical teams from outside the Armenian SSR; no need for more food and clothing; and continued need for kidney dialysis machines and winter tents."

Here are some of the particular factors that emerged from the Arme-

nian earthquake experience:

Shelter: Temporary shelters proved unpopular at first; people were reluctant to spend the nights in the affected area for fear of another quake; gradually, however, they got used to living in the tents.

Blood products: There was an abundant supply, and therefore no need to launch a national appeal for blood donations.

Relief supplies: The very frequent arrival of relief supplies caused many problems with unloading, storage and distribution. At times, the teams had only 14 minutes to unload as much as 40 tons of relief goods at the Yerevan airport.

Labelling: Packages were not adequately labelled, so the sorting of contents proved very difficult, and this in turn slowed down the distribution mechanism.

Sorting: Many unsolicited drugs were sent that did not figure on the lists of standard drugs compiled by WHO. Identifying and separating these drugs consumed a lot of time and human resources.

Private cars: The influx of private cars into the area had to be stopped by

After the Armenian earthquake of 1988, voluntary aid came from 70 countries. The response was both generous – and difficult to manage!

Survivors camped out for a time in the streets, braving bitter sub-zero temperatures.

military cordons on the seventh day. Mostly they belonged to relatives and friends coming to assist in rescue and relief operations.

Exhaustion: By the eighth day, many rescue workers were exhausted and there was a need to bring in some entertainment, television and newspapers, and to let people take a rest.

Media: Although informative, the media in general were eager for sensationalism. Newspapers early reported as many as 100,000 deaths, then 45,000 and finally a more accurate figure of 25,000. This inaccurate reporting was a cause of despair among survivors, many of whom had lost family members and friends.

Visitors: Many VIPs ("very important people") came to visit the disaster scene and distracted attention and resources. Some required protocol and escort services which were hard to provide under those circumstances.

Myths:

A disaster brings out the worst in human behaviour. – On the contrary, a wide sense of solidarity and mutual

helpfulness emerged among the Armenians and the many nationalities involved.

Epidemics are inevitable following disasters. – There was no evidence to support this commonly held view. The military quickly repaired broken water pipes and brought in sufficient supplies of clean water; they also helped to lay on sewage disposal facilities. No supplementary vaccination programmes were needed and there was no outbreak of disease.

Famine is inevitable after a major disaster. – Food supplies were not a problem.

Lessons learned:

– The importance of disaster preparedness and the adequate training of personnel at all levels is vital.

Many of the medicaments sent in as foreign aid for victims of the Armenian earthquake were inadequately described, or were labelled in any one of 21 foreign languages; others were time-expired. The local authorities decided to burn those that they could not use. But because of the risk of dangerous fumes being released, a special, costly incinerator had to be purchased abroad and imported.

– There should be a National Disaster Plan, with responsibilities and lines of communication formally established and rehearsed.

– The needs of victims should come first, not the needs of donors. Disaster relief should be demand-led, and not supply-led.

– Planning for long-term rehabilitation, though difficult to arrange, should start in the very first days after a disaster and must be followed through.

– The UN specialised agencies and the LRCS should improve coordination of international aid efforts in order to avoid duplication or the provision of unwanted equipment and supplies.

– Good communications are the key to the management of any disaster.

– Donated goods should be colour-coded to speed delivery and sorting: green for medicines, red for foodstuffs, blue for tents, clothing and other relief materials.

– All vehicles should have spare wheels, bulbs, fuses, fanbelts and jerry cans, and should be serviceable in the country of operation.

– Packaging should be waterproof and re-usable as storage bins.

– Tinned goods should invariably be accompanied by opening devices! ■

Bangladesh bears the brunt

by Ahmed Fazl

Kalim Mollah looks wistfully at the rusty nail he had hammered into the old jackfruit tree marking the level of water in the great flood of 1988 which washed away his mud hut and drowned three of his children. Water from the Padma river has once again surrounded the village of Fulbari since the monsoon rains pounded the flood plains, but the defiant rice farmer has raised the level of his homestead by putting his hut on bamboo stilts.

"Even if the water reaches the 1988 level, my house will now remain dry", said Mr Mollah as he pointed to the old jackfruit tree which survived the worst flood to hit Bangladesh in living memory.

Mr Mollah, 35, had to flee the village with his wife and two surviving daughters in 1988, and take refuge for five weeks in a cramped flood shelter in the capital, Dhaka, 25 km away. But as the water receded, leaving an agonising trail of destruction and human misery, Mr Mollah and other villagers returned to the ruins and rebuilt their huts on new hopes.

That flood devastated almost three-fourths of Bangladesh and displaced more than a quarter of the country's estimated 110 million people. Thousands of hectares of rice fields were washed away, hundreds of bridges demolished and power and telephone lines uprooted. An estimated 2,000 people were either drowned or died as a result of malnutrition and flood-related diseases.

But the nation had swung back from the ravages of the catastrophe with a new determination to face the challenge. Mr Mollah is not the only one in

his community who has raised the floor of his house above the flood level of 1988, and today the village of Fulbari is prepared to face any future flood.

Mr Ahmed Fazl is Assistant Editor of *The Bangladesh Times*, Dhaka, and specialises in development issues.

"If the Padma rises again, we have better ideas of meeting the threat," said Rahim Sardar, the village headman. "Not only are our houses on a higher platform, we know how to survive in the water and tackle the aftermath."

Mr Sardar has attended a workshop, arranged by the ministry of health and funded by WHO, where he sat with doctors, health workers, agricultural officials, fisheries experts and relief agencies to discuss how Fulbari's villagers will face a future flood.

The workshop is part of the government's and the local community's response to devastating floods, which have recurrently visited the country. Washed by three of the world's major rivers – the Brahmaputra, the Meghna and the Ganges, as well as hundreds of their tributaries – Bangladesh endures inundations as an annual event. When the three river basins rise at the same time with the monsoon rains pounding the plains, disasters like those in 1987 and 1988 occur.

Neither history nor geography have been kind to Bangladesh. One of the least developed countries in the world, it went through centuries of colonial rule. Burdened with a large popu-

lation, its geographical location, climate and ecology all tend to encourage both natural and man-made disasters – floods, cyclones, tidal surges and drought.

A cyclone racing in from the Bay of Bengal in May 1985 devastated the southern coast, wiping out an entire coastal island with more than 11,000 people. But repeated natural disasters have enhanced the resilience of the community to tackle the calamities.

"If a disaster strikes now, we are in a better position to handle it," said Dr Aftabuddin Khan, Assistant Director in the Directorate General of Health Services. Dr Khan has conducted two workshops on disaster preparedness in different *upazilas* (counties), attended by doctors, paramedics and community leaders. The purpose of the workshops is to measure the level of preparedness to face a sudden disaster and also to involve the community in the right strategies. As a result there are now local plans of action to meet such events.

"We have taken drugs and other relief materials to the county from where they can be distributed to the villages during a crisis," Dr Khan said. The locally-elected chairman heads the crisis management team.

If the model plan succeeds it will be replicated in the 30 other counties which have been identified as most vulnerable to catastrophe. The selected areas are part of the network of a disaster preparedness strategy at the multi-sectoral and health sector levels, which in turn emerged from an assessment of Bangladesh's national and health capabilities to respond to disasters. WHO sponsored the study, the findings of which led to an interim emergency project in the selected counties.

This project has focused on three main aspects: the training of key personnel, stockpiling of critical items, and development of transport and communication systems. At least one medical officer and one health assis-

rollcall of death

Exact figures for the death toll in great disasters are always hard to assess. Some idea of the scale of the greatest catastrophes of the past can be derived from the following:

79 A.D.	Vesuvius eruption, Pompeii, Italy	deaths 20,000
1347-1351	The Black Death (plague)	75,000,000
1846-1851	Famine and typhus, Ireland	1,500,000
1877-1878	Famine, northern China	9,500,000
Aug. 1883	Krakatoa volcano, (Indonesia)	36,380
May 1889	South Fork Dam burst, Penn., USA	2,200
1918	Influenza outbreak	21,640,000
Dec. 1920	Landslide, Kansu Province, China	180,000
Mar. 1925	Tornado, south central USA	689
Aug. 1931	Flood, Hwang-ho River, China	3,700,000
Apr. 1942	Mine disaster, Honkeiko, China	1,572
Nov. 1970	Cyclone, Bangladesh	300,000
July 1976	Earthquake, Tangshan, China	242,000
May 1985	Cyclone and tidal wave, Bangladesh	11,000
Dec. 1988	Earthquake, Armenia, USSR	25,000
Sep. 1989	Hurricane Hugo, Caribbean and USA	105 60,000 homeless
June 1990	Earthquake, Rudbar, Iran	37,000

tant, in charge of epidemiological assistance, are involved in the training. A special buffer stock of essential medicines is being built up and a list of critical items has been prepared. For speedy transport to carry out relief work immediately after a disaster, each county has been provided with a mechanised boat. Police communication networks in the rural parts of the country are to be used to transmit data concerning epidemiological surveillance and assessment of needs.

Many sectors are involved. The meteorological department is being modernised and is linked with similar units in the region via satellites. Experts from the Water Development Board regularly monitor the levels of rivers and keep people aware of any changes. Seeds of crops are being developed which will be flood resistant or can be planted and harvested before the onset of the flood season.

For speedier transport by helicopter of relief goods, including life-saving medicines, heliports have been built in each of the country's 460 counties. Every cluster of villages now has at least one multi-purpose concrete shel-

ter. The installation of tubewells on sufficiently raised lands has started and the inland transportation system is being upgraded.

After the 1988 flood, the government formed the National Disaster Council which advises the government and adopts speedy remedial measures. The members of this Council include cabinet ministers, political leaders, technocrats, scientists, voluntary agencies and journalists.

A 15-point mid-term and long-term plan has also been approved as a strategy for mitigating and preventing effects of disasters. These include dredging rivers, improving flood warning systems, building embankments, shifting food warehouses to higher lands and modernising river boats. A General Coordination Committee has been formed within the ministry of health to coordinate and supervise health programmes during and after a disaster.

A critical list of medical supplies is kept handy, and besides the store of oral rehydration salts for the treatment of diarrhoea and other intestinal disorders, the country is ready at any time

to increase production of these salts.

Pure water supply remains a key factor in the control of an epidemic. In the countryside more tubewells have been sunk, and in the major cities of Dhaka and Chittagong the water supply and sewerage authorities have taken steps to protect the water pumping stations from being submerged under flood water.

Future strategy for dealing with disasters relies, to a great extent, on the experience gathered by the professionals and the community through their continuous fight against disasters. People are being sensitised to disaster preparedness and given basic techniques for dealing with emergencies through widely distributed booklets.

The sufferings in the 1988 flood have led to a national commitment to face future onslaughts with cooperation from many sectors. But there has always been a strong involvement of the community. Farmers like Kalim Mollah have their individual responses to disasters, and in combination all these individual responses strengthen the community response and the national response to disasters. ■

Working with UNDRO

by M'Hamad Essaafi

UNDRO, the Office of the UN Disaster Relief Coordinator, has for many years cooperated closely with WHO in order to ensure that the respective efforts of the two bodies in disaster management are mutually compatible and complementary. Their joint involvement in advance planning for disasters has contributed to a better understanding of the health aspects of natural disasters.

When a disaster strikes, UNDRO disseminates information on the scope of the catastrophe, as well as on immediate emergency relief requirements, to several hundred members of the international disaster management community. Whenever medical needs are among the assistance required – as it usually is – UNDRO first clears the data on such requirements either with WHO or with PAHO (the Pan American Health Organization, WHO's Regional Office of the Americas).

In the disaster-stricken country itself, UNDRO delegates collaborate with

WHO/PAHO colleagues on the inter-agency teams which meet to plan coordinated action. The advice of WHO experts, as well as the organization's material assistance in responding to major catastrophes, have been invaluable in helping to alleviate the suffering of the victims.

Mr M'Hamad Essaafi is Under-Secretary-General of the UN and Coordinator of the Geneva-based Office of Disaster Relief.

The case of the aftermath of the severe earthquake which struck Iran on 21 June 1990 is a typical example of the close cooperation which exists between WHO and UNDRO at the working level during the emergency phase following a major disaster. From the first day after the earthquake, and throughout the emergency phase, which lasted some two weeks, the country representative of WHO collaborated closely with the UNDRO/UNDP Resident Representative in Iran, as well as with UNDRO staff sent to the country from Geneva headquarters.

This inter-agency cooperation led to a consensus on the types and quantities of external relief goods and

services needed, including those for health care, with the result that the information on those requirements disseminated by the different agencies remained consistent. WHO experts provided specialised information on medical and sanitation needs, on the number and nature of injuries sustained by victims, and on requirements for external assistance for those receiving treatment in hospitals.

The United Nations International Emergency Network, UNIENET, developed and managed by UNDRO, is another outstanding example of close cooperation between UNDRO and WHO, as well as PAHO. This electronic network, using the latest in advanced communications technology, provides the worldwide disaster management community with instant access to both operational and background information on disasters. "Bulletin Boards" of information are updated on a regular basis in order to keep them always current.

Cooperation on disaster mitigation programmes is just as important as disaster response. A prime example of this is the Pan-Caribbean Disaster Preparedness and Prevention Project (PCDPPP), initiated in 1981, which is managed by UNDRO and carried out in collaboration with PAHO/WHO, as well as the League of Red Cross and Red Crescent Societies (LRCS).

Its initiatives include training personnel in the latest disaster management techniques, and technical assistance projects such as surveys of vulnerable areas, starting national disaster preparedness offices, and improving emergency telecommunications systems. More recent PCDPPP activities have focused on hazard mapping programmes in risk areas, increasing public awareness measures, and setting up a regional disaster information centre.

UNDRO recently mounted a consultancy mission to the South Pacific, to survey the preparedness requirements of several island countries in that region. The UNDRO consultants discussed the health aspects of disaster mitigation planning with the WHO representatives in the countries visited, and will consequently take these all-important health aspects into account.

Mr M'Hamad Essaafi (right) convenes an inter-agency meeting in Teheran to discuss emergency relief work after the Iran earthquake of June 1990.



WHO/J. Bland

Freaks of nature: errors of man

Most of this issue of *World Health* deals with the kind of natural disaster which mankind is still incapable of preventing and rarely able to predict. Some catastrophes are entirely of man's making. The chemical plant accident at Bhopal, India, in December 1984 resulted in more than 2,800 deaths when a deadly gas cloud leaked from the plant and suffocated the sleeping population living nearby.

In April 1986, a series of human errors resulted in a fire at the Tchernobyl nuclear power station near Kiev in the Soviet Union. Winds carried the pall of invisible but potentially lethal radio-activity across huge areas of Europe. Pockets of increased radio-activity are still discernable today in many countries.

Occasionally, natural disasters occur which nobody could have foreseen. In November 1985 the heat from an eruption of the volcano Nevado del Ruiz in Colombia caused a massive meltdown of the mountain's snowcap. The

result was a vast river of mud and ice which wiped out the town of Armero and killed some 25,000 people; pitifully

few survivors were pulled out alive from the clinging mud.

And in August 1986, Lake Nios – nestling peacefully in an old volcanic crater in the African state of Cameroon – suddenly became a killer; subterranean activity released a heavier-than-air cloud of toxic gases which rolled down the sleeping valleys and suffocated more than 1,500 inhabitants.

Fatal air crashes are not, technically speaking, included among what

WHO regards as "disasters with public health consequences." The worst-ever in aviation history occurred at Tenerife in the Canary Islands in March 1977, when one jumbo airliner crashed as it took off into another waiting on the ground; the death toll was 583. But the practice drills to deal with serious aircraft accidents which many countries regularly undertake can be expanded so as to serve as training courses for preparedness against natural disasters. ■



Poster for World Health Day 1991



his brightly coloured poster for World Health Day, 7 April 1991, expresses graphically the need for all of us to stand together in a state of readiness against catastrophe. The poster was designed for WHO by 18-year-old Renaud Mignot of the Cantonal Art School, Lausanne, Switzerland. A defensive wall of human figures ensures the safety of the community against the worst ravages of flood, volcano and storm. Homes may still shake and crack when an earthquake strikes – but they are stoutly built; they stand firm. Epitomising the slogan: *Should disaster strike – be prepared!*

The poster may be ordered free of charge from: Office of Information, World Health Organization, 1211 Geneva 27, Switzerland.

Editor: Philippe Stroot

A nutritional policy for Europe

It is a well-known saying that we dig our own graves with our teeth! However crude it sounds, this proverb seems to include an element of truth, especially in Europe, where the main causes of sickness and death are linked with nutrition. Throughout this region, in fact, nearly half of all premature deaths occurring before the age of 65, in women as well as men, can be attributed to diseases in which diet plays an important role.

Coronary heart disease, stroke, many kinds of cancers, oral diseases, anaemia, goitre, cirrhosis of the liver, diabetes, gallstones, obesity, high blood pressure and bone disease in the elderly are probably all preventable. However, we don't always know precisely how dietary deficiencies or excesses lead to these diseases.

It will require a massive preventive effort involving governments, the food producers and manufacturers as well as the health sector to relieve the burden that these diseases impose on European health services. The only way of doing this is for countries to draw up and carry out national nutrition policies – more specifically, food policies that explicitly take health into account.

It was precisely to show how health can be included in food policy planning that the First European Conference on Food and Nutrition Policy was convened in Budapest last October. Almost all the 32 member

countries of WHO's European Region (EURO) sent delegations to this conference, which was arranged by EURO's nutrition unit in close collaboration with the Hungarian Ministry of Welfare and under the co-sponsorship of the Food and Agriculture Organization (FAO).

What do Europeans eat? What ought they to eat? What can the food and agriculture sector do to improve people's health? These important questions and many others were tackled by the delegates, who included representatives of the health, education and food industry sectors, as well as the media.

During the Budapest conference, Dr Jo-Eirik Asvall, WHO's regional director for Europe, stressed that, although the European region is considered as developed, there are still areas where foodstuffs are in short supply or do not offer a sufficient variety of nutrients, besides pockets of outright poverty and malnutrition. At the same time, other parts of the continent have nutritional problems resulting from over-eating. "Improving nutrition is a matter of life or death," he added, "not only for poor countries but also for the rich."

Specialists at the Budapest meeting paid particular attention to the diet found in most of the Mediterranean countries. This includes plenty of fruit and vegetables, fish but relatively little meat, and is often accompanied by olive oil, rich in poly-unsaturated fats. As a result, these countries have appreciably fewer heart

How Europe eats: a lively round-table discussion

diseases than other industrialised countries. Here is an example to think about and perhaps to follow.

Without necessarily being contradictory, the discussions also brought to light what some called "the French paradox." In countries where fine cuisine and good wines are an integral

part of the culture, illnesses linked with nutrition are relatively less widespread than elsewhere in Europe, despite an undoubted excess of consumption. The explanation probably lies in the great diversity of foodstuffs consumed in France compared with the unvaried diet that prevails in other countries. ■



WHO/J. Bland

Don't forget health!

Economic development and health are inseparable

In the least developed countries (LDCs), all the social and economic indicators are in the red. Life expectancy is under 50 years as against 74 years in the developed countries; 120 children in every 1,000 die in the first year of life, compared with 15 in every 1,000 in the industrialised countries. Barely two deliveries in five are supervised by trained attendants. It is hardly surprising under such circumstances that every year in the developing countries nearly 500,000 women die from pregnancy-related causes.

At the Second UN Conference on the Least Developed Countries, held in Paris last September, WHO urged that, in these countries' economies, the health sector should not be sacrificed on the altar of structural readjustment policies and

debt servicing. Dr Hiroshi Nakajima, Director-General of WHO, said the organization would give special priority to the health of the poorest people in countries facing severe economic difficulties.

Health improvement is inseparable from social and economic development; to aim for the one without considering the other would be totally unrealistic, and the economic crisis merely confirms this obstinate fact. We have to face up to the evidence, Dr Nakajima said; development cannot make savings on health, and the poorest countries will certainly not resolve their problems by making drastic cuts in their health budgets.

For despite a few isolated successes here and there, the failure is plain to see; during the decade that has just ended, not only have the



WHO/T. Farkas

developed countries failed to catch up, they have fallen even further behind the other developing countries.

Dr Nakajima declared: "In order for people to become active partners in their countries' quest for growth and development, they must be in good health and well fed, housed and educated. The challenge of the 1990s will therefore be to satisfy these basic needs for all the inhabitants of the least developed countries."

WORLD HEALTH INDEX 1975-1990

A new index for all issues of *World Health* between 1975 and 1990, inclusive, is now available. It exists only in the two working languages of WHO - English and French. The last Index, 1975-1987, has been brought up to date to cover the past three years' issues of the magazine. But in addition it has been considerably expanded to include most News Page items as well as being comprehensively cross-indexed.

Among the new and expanded sections are cartoons and logos (a long list indeed), health education institutions, health information, lifestyles, legislation (with entries on smoking, equity for women, chemical safety, and so forth), maternal and child health (unaccountably missing from previous indexes!) and posters (including the "centrespreads" of the magazine which many readers pin up as instant items for quick reference in the field of health education).

Included in this A5-size publication, besides the addresses and phone numbers of WHO headquarters and the six Regions, is a useful list of all WHO's member countries, itemised alphabetically under the Region to which each belongs.

The *World Health Index 1975-1990* will be automatically issued to all libraries and ministries of health already on our mailing lists. Other readers who would like a copy, free of charge, should write to: The Editor, *World Health*, WHO, 1211 Geneva 27, Switzerland. ■

Newsbriefs

• **Mr Petre Roman, Prime Minister of Romania**, chose WHO headquarters in Geneva to give a press conference last September on the health situation of his country. He took the opportunity to launch an appeal for international aid on behalf of abandoned and handicapped Romanian children, who have desperate need of better medical and social assistance.

• **New ADG:** Mr Denis G. Aitken has been appointed Assistant Director-General of WHO, with responsibility for budget and finance, personnel, and conference and general services. A former United Kingdom civil servant, Mr Aitken has worked for 11 years in the UN system, firstly as Deputy Director of Administration, and since 1985 as Director of Administration with the International Maritime Organization (IMO) in London.

• **Health promotion in Africa:** In the context of the Red Cross and Red Crescent Radio Awards for promoting health in Africa, to be granted during 1991, WHO and the League of Red Cross and Red Crescent Societies have announced two special prizes for radio broadcasts dealing with the fight against AIDS. The jury will be particularly looking for programmes which show originality and effectiveness in putting across messages with useful information, in easily understood language, and appropriate to the everyday life and culture of the target population.

• **Experts on emergencies.** A new Expert Committee on Emergency Relief Operations will meet for the first time at WHO headquarters in Geneva between 11 and 15 March. On the agenda: WHO's role in cooperating with other agencies in disaster management, and in developing disaster epidemiology; setting standards for disaster response technology in the health field; and WHO's involvement in training people for disaster preparedness.

• **Medical school.** Since the publication of the sixth edition of the *World directory of medical schools*, Guyana has informed WHO of the setting up in 1985 of the University of Guyana Medical School, Faculty of Health Sciences, University of Guyana, in Turkeyen. ■



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In the next issue

The March-April issue of *World Health* will examine the problems of the world's burgeoning cities, with their wide discrepancies in living - and health - standards between rich and poor. The Technical Discussions this year, at the time of the World Health Assembly in Geneva in May, have as their topic: Strategies for health for all in the face of rapid urbanisation.

Courtesy World Health Organization